

APPENDICES

Appendix A: Index of Near-Term R&D Funding and Staffing Plans

Program Title	Funding			FTE			Page
	FY 1997	FY 1998	FY 1999	FY 1997	FY 1998	FY 1999	
<i>Federal Highway Administration (FHWA)</i>							
Highway Safety	8,650	9,000	NA	22.80	22.80	NA	87
Pavement Research Program	13,731	11,150	NA	24.00	24.00	NA	89
Structures Research Program	14,362	15,256	NA	15.00	15.00	NA	91
Environmental Research	5,443	5,566	NA	5.00	5.00	NA	92
Right-of-Way Research Program	322	365	NA	0.25	0.25	NA	93
Policy Research	5,328	8,000	NA	6.00	8.00	NA	172
Highway Planning Research	5,889	16,025	NA	4.00	6.00	NA	174
Motor Carrier Research	7,399	8,541	NA	9.00	9.00	NA	152
ITS -- Research and Development	28,605	45,500	NA	NA	NA	NA	122
ITS -- Adv. Vehicle Control and Info. Systems (AVCIS)	22,000	26,000	NA	NA	NA	NA	129
ITS -- Architecture and Standards	5,000	13,000	NA	NA	NA	NA	136
ITS -- Operational Tests	54,992	24,500	NA	NA	NA	NA	131
ITS -- Evaluation/Program Assessment	2,000	9,000	NA	NA	NA	NA	134
ITS -- Mainstreaming	0	22,000	NA	NA	NA	NA	138
ITS -- Deployment Incentive Program	0	100,000	NA	NA	NA	NA	143
ITS -- Program Support	7,761	10,000	NA	NA	NA	NA	142
ISTEA Section 6058 Funds	113,000	0	NA	NA	NA	NA	143
Technology Assessment and Deployment	13,811	14,800	NA	27.00	27.00	NA	94
National Advanced Driver Simulator	0	12,250	NA	NA	NA	NA	176
Local Technical Assistance Program	8,827	12,000	NA	2.00	2.00	NA	95
Fairbank Building Renovation	500	2,000	NA	0.20	0.25	NA	204
National Highway Institute	4,269	8,000	NA	13.00	13.00	NA	96
University Transportation Centers Program	6,000	6,000	NA	NA	NA	NA	193
University Research Institutes	6,250	6,000	NA	NA	NA	NA	194
State Planning & Research Program	80,367	80,367	NA	NA	NA	NA	199
Implementation of the Strategic Highway Research Program	20,000	0	NA	16.00	NA	NA	98
Technology Implementation Partnership Program	0	11,000	NA	0.00	NA	NA	100
Long-Term Pavement Performance	6,000	15,000	NA	0.00	NA	NA	101
Advanced Research	0	10,000	NA	0.00	NA	NA	102
Dwight David Eisenhower Transportation Fellowship Program	2,000	2,000	NA	1.00	1.00	NA	198
Applied Research & Technology	41,000	0	NA	NA	NA	NA	104
National Technology Deployment Initiatives	0	56,000	NA	0.00	NA	NA	105
Seismic Research Program	2,000	0	NA	2.00	0.00	NA	108
Timber Bridge Research Program	1,000	0	NA	1.00	0.00	NA	109
GPS Support	0	2,100	NA	0.00	NA	NA	144
Research & Technology Technical Support	0	10,000	NA	0.00	NA	NA	109
Administration	10,026	10,327	NA	NA	NA	NA	203
<i>Subtotal--FHWA</i>	496,532	581,747					

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Program Title	Funding			FTE			Page
	FY 1997	FY 1998	FY 1999	FY 1997	FY 1998	FY 1999	
<i>National Highway Traffic Safety Administration (NHTSA)</i>							
Safety Systems	6,488	8,338	NA	16.01	16.02	NA	153
Biomechanics	7,437	10,587	NA	8.54	8.54	NA	154
Partnership for a New Generation of Vehicles	2,496	2,496	NA	0.00	0.00	NA	155
Crash Avoidance--Driver/Vehicle Performance	1,000	1,000	NA	2.00	2.00	NA	144
Heavy Vehicles	595	595	NA	7.47	7.48	NA	155
Fatal Analysis Reporting System (FARS)	5,242	5,242	NA	6.40	6.41	NA	177
National Automotive Sampling System (NASS)	9,658	9,658	NA	10.67	10.68	NA	177
Data Analysis Program	1,635	1,935	NA	13.88	12.82	NA	178
State Data Program	3,041	3,041	NA	9.61	9.61	NA	178
Occupant Protection Survey	300	300	NA	1.00	1.00	NA	179
Special Crash Investigations	331	1,031	NA	1.07	1.07	NA	179
Technology Transfer Programs	40	40	NA	1.00	1.00	NA	180
Vehicle Research and Test Center	799	799	NA	0.20	0.50	NA	204
Highway Safety Research	5,123	5,123	NA	17.15	18.15	NA	165
Administration	12,600	13,082	NA	NA	NA	NA	203
<i>Subtotal--NHTSA</i>	56,785	63,267					
<i>Federal Rail Administration (FRA)</i>							
Equipment, Operations & Hazardous Materials Research	5,545	5,509	NA	5.00	5.00	NA	156
Track, Structures, and Train Control	7,346	7,746	NA	3.00	NA	NA	110
Safety of High-Speed Ground Transportation	4,600	5,250	NA	1.00	1.00	NA	157
R&D Facilities	420	850	NA	1.00	1.00	NA	205
Administration	2,181	2,283	NA	2.00	2.00	NA	203
Next-Generation High-Speed Rail	26,176	19,595	NA	4.00	4.00	NA	158
<i>Subtotal--FRA</i>	46,268	41,233					
<i>Maritime Administration (MARAD)</i>							
Industry Competitiveness	0	0	NA	NA	NA	NA	145
Intermodal Development	0	0	NA	NA	NA	NA	111
Maritime Safety	0	0	NA	NA	NA	NA	167
Shipyard Revitalization	0	0	NA	NA	NA	NA	158
National Security	0	0	NA	NA	NA	NA	180
Administration	0	0	NA	NA	NA	NA	203
<i>Subtotal--MARAD</i>	0	0					

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Program Title	Funding			FTE			Page
	FY 1997	FY 1998	FY 1999	FY 1997	FY 1998	FY 1999	
<i>Federal Transit Administration (FTA)</i>							
New Bus Vehicles and Infrastructure	6,500	11,000	NA	NA	NA	NA	160
Advanced Bus Propulsion Systems	9,500	8,000	NA	NA	NA	NA	160
New Rail Vehicles and Infrastructure	200	800	NA	NA	NA	NA	112
Transit Services and Management Innovation	1,500	700	NA	NA	NA	NA	181
Rural and Specialized Transportation	2,500	2,500	NA	NA	NA	NA	181
Metropolitan / Rural Policy Development	300	1,000	NA	NA	NA	NA	182
Transportation Planning and Project Development Research	700	1,200	NA	NA	NA	NA	182
Safety and Security	650	1,100	NA	NA	NA	NA	168
Human Resources	150	500	NA	NA	NA	NA	183
Transit Cooperative Research Program	8,250	8,250	NA	NA	NA	NA	197
National Transit Institute	3,000	3,000	NA	NA	NA	NA	183
University Transportation Centers Program	6,000	6,000	NA	NA	NA	NA	193
Rural Transit Assistance Program	4,500	4,964	NA	NA	NA	NA	184
Administration	2,223	2,270	NA	NA	NA	NA	203
<i>Subtotal--FTA</i>	45,973	51,284					
<i>Research and Special Programs Administration (RSPA)</i>							
Hazardous Materials Research	1,161	1,167	NA	2.20	2.20	NA	146
Pipeline Safety Research	1,644	1,648	NA	NA	NA	NA	113
Research and Technology	6,580	5,296	NA	NA	NA	NA	184
Emergency Transportation	68	69	NA	NA	NA	NA	147
<i>Subtotal--RSPA</i>	9,453	8,180					
<i>Surface Transportation--Operating Administration Subtotals</i>							
Subtotal -- FHWA	496,532	581,747	NA	NA	NA	NA	
Subtotal -- NHTSA	56,785	63,267	NA	NA	NA	NA	
Subtotal -- FRA	46,268	41,233	NA	NA	NA	NA	
Subtotal -- MARAD	0	0	NA	NA	NA	NA	
Subtotal -- FTA	45,973	51,284	NA	NA	NA	NA	
Subtotal -- RSPA	9,453	8,180	NA	NA	NA	NA	
<i>Total Surface Transportation R&D Funding Requirements</i>	655,011	745,711					

**APPENDIX B. PRELIMINARY PERFORMANCE MEASURES
FOR DOT R&D PROGRAMS**

R&D Program	FY 1998 Performance Measures
ITS R&D -- Traffic Management and Control	vehicle throughput, travel time
ITS R&D -- Crash Avoidance Research	percentage of collisions, fatalities, serious injuries, and property losses eliminated by advanced crash avoidance technologies
ITS R&D -- Enabling Research	throughput, customer acceptance, cost; reduction in fatalities, injuries, crashes, property damage, wrong turns, and miles per trip
ITS R&D -- Rural Research	reduction in fatalities, injuries, and crashes; increased accessibility to services, use of system, traveler comfort; reduced fleet operating costs for the public sector; reduced transportation costs for the private sector
ITS R&D -- Other R&D	safety and mobility as it relates to efficiency
ITS R&D -- Advanced Transit Management Research	reduced transit travel times, reduced accidents and fatalities, reduced costs, increased operating efficiencies, increased customer convenience, increased overall transit usage, decreased congestion
ITS R&D -- Commercial Vehicle Operations	reduction in crashes; reduction in fatalities; increases in people or goods moved per unit of time; reductions in travel time; improvements in customer satisfaction; savings in cost to public and private sectors
ITS R&D -- Positive Train Control Systems	reduction in the number of accidents at highway-rail intersections (HRIs), in fatalities and severity of injuries to motor vehicle occupants in accidents at HRIs, in delay and congestion associated with railroad traffic blocking HRIs; development and deployment of technologies for test in rail corridors, and determination of suitability for nationwide deployment
ITS -- Advanced Vehicle Control and Information Systems	reduction in fatalities, crashes, and injuries; increase in vehicles/unit time; reduction in travel time; reduction in transportation costs for business; reduction in fleet operating costs for public sector

ITS Operational Tests -- ATMS/ATIS	mobility and productivity measures of customer satisfaction and cost
ITS Operational Tests -- APTS	reduced capital costs resulting from multiple operators sharing the procurement and maintenance of capital equipment; increased passenger convenience, transit usage, and customer acceptance resulting from the development of a proximity card integrated with commercial/retail stored-value card
ITS Operational Tests -- Commercial Vehicle Operations	reduction in crashes and travel time
ITS Operational Tests -- Advanced Vehicle Control and Safety Systems	measurement of the effectiveness of individual crash avoidance countermeasures on a fleet of vehicles
ITS Operational Tests -- Rural	reduction in fatalities, injuries, and crashes; increased accessibility to services; use of system; traveler comfort; reduced fleet operating costs for public sector; reduced transportation costs for business
ITS Evaluation/Program Assessment -- ITS Field Evaluations	reduction in travel time, crashes, and fatalities; increases in throughput; improvements in customer satisfaction; savings in costs to public and private sectors; measurement of energy and emissions impacts of ITS
ITS Evaluation/Program Assessment -- ITS Program Assessment	reduction in travel time, crashes, and fatalities; increases in throughput; improvements in customer satisfaction; savings in costs to public and private sectors; measurement of energy and emissions impacts of ITS; assessment of ITS acquisition and life-cycle costs; number of deployed intelligent transportation infrastructure systems that integrate the capabilities of appropriate elements to achieve maximum traffic management efficiency
ITS Architecture and Standards -- Architecture	percentage of intelligent transportation infrastructure deployments based on the architecture, number of standards developed for key interfaces identified by the architecture
ITS Architecture and Standards -- Standards	approximately 10 draft standards will be developed and available for use by the ITS community
ITS Mainstreaming -- Technical Assistance	presentation of over 40 seminars and workshops; as many as 25 different best practice publications

ITS Mainstreaming -- Planning/Policy	state and local planning initiatives in 40 metropolitan areas; provision of technical, best practices, and guidance materials to over 400 state and local planning organizations
ITS Mainstreaming -- Training	training of over 4,000 public sector officials and transportation professionals; ITS technician training and certification program available to over 500 technicians; over 100 university scholarships in effect
ITS Mainstreaming -- Awareness and Advocacy	ITS technologies and systems showcased at major events and annual meetings of professional associations and stakeholder organizations; development and implementation of a traveler information awareness campaign
ITS Program Support	successful and effective management of the ITS program
Safety Systems (NHTSA)	completion of 75% of planned research tasks/timely dissemination of research results; on-time responses to short-term rulemaking needs; meet customer needs for timely dissemination of research results as measured by end of year assessment of contractor reports and staff technical papers published and staff presentations; degree to which projects support agency crashworthiness rulemaking activities
National Transportation Biomechanics Research Center (NHTSA)	completion of all planned project tasks in 75% of the biomechanics research projects approved and ongoing in FY 1998; provision of on-time responses to short-term rulemaking needs; meet customer needs for timely dissemination of research results as measured by end of year assessment of contractor reports and staff technical papers published and staff presentations
Crash Avoidance Research -- Driver/Vehicle Performance (NHTSA)	number of rollover crashes prevented through improved understanding of factors that affect ABS effectiveness and on-the-road rollover phenomena
Crash Avoidance Research -- Heavy Vehicles (NHTSA)	reduction in the number of heavy truck crashes and fatalities
Fatal Analysis Reporting System (NHTSA)	creation of the 1997 FARS electronic data file on over 42,000 fatalities by July 1998

National Automotive Sampling System (NHTSA)	creation of annual electronic data files for NASS by August 1998 for the Crashworthiness Data System (CDS) and September 1998 for the General Estimates System (GES); increase the number of NASS CDS cases by 40% by 1999
Data Analysis Program (NHTSA)	response expected to more than 100 statistical analyses, more than 2,500 information retrievals for internal customers, and more than 5,000 information retrievals for external customers
State Data Program (NHTSA)	provision of up to 15 quality state databases
Special Crash Investigations (NHTSA)	creation of an electronic file off all special crash investigations
Occupant Protection Survey (NHTSA)	a national survey to measure occupant restraint use
Partnership for a New Generation of Vehicles (NHTSA)	completion of all planned project tasks in 75% of the research projects approved and ongoing in FY 1998; meet customer needs for timely dissemination of research results as measured by end of year assessment of contractor reports and staff technical papers published and staff presentations; degree to which these projects support the PNGV program
Vehicle Research and Test Center (NHTSA)	earlier determinations of recall requirements, with resultant reduction in crashes and injuries caused by defective components or vehicles; development of a Child Restraint System Database; reduction of out-of-position child fatalities through initial deployment of "smart" airbag systems; timely direction of NHTSA inventory of anthropomorphic test dummies toward tests supporting compliance testing, rulemaking initiatives, R&D projects, and advanced dummy development
National Advanced Driving Simulator (NHTSA)	an improved understanding of the nature of driver-related causes of crashes; assistance in the development of applicable technology countermeasures
University Transportation Centers (FHWA/FTA)	project-level reviews using third party experts to assess the quality of individual projects and courses as they are developed; center-level reviews using teams of departmental managers to evaluate the performance of individual centers and institutes in all areas of responsibility; program-level reviews by departmental program managers and policy officials to assess the relative value of the program as a whole

University Research Institutes (FHWA)	project-level reviews using third party experts to assess the quality of individual projects and courses as they are developed; center-level reviews using teams of departmental managers to evaluate the performance of individual centers and institutes in all areas of responsibility; program-level reviews by departmental program managers and policy officials to assess the relative value of the program as a whole
Hazardous Materials Research (RSPA)	completion of 75% of planned project tasks/timely dissemination of research results, on time response to short-term rulemaking, international standards development and significant safety problem needs; meet customer needs for timely dissemination of research results as measured by end of year assessment of contractor reports and staff technical papers and staff presentations; degree to which projects support agency rulemaking, international standards development and program activities
Bureau of Transportation Statistics	focus groups and interviews to develop a better understanding of how transportation decisions are made, and how BTS data and analysis have played a role, and might in the future; customer surveys; "hits" or downloads, along with IP address type analysis provides initial data for BTS internet analysis; automated search of citations and references to BTS data will provide initial impressions from which to develop surveyable populations for BTS analysis publications which have a broad distribution and broad policy audience

APPENDIX C. LIST OF ACRONYMS

A.

AAA	=	American Automobile Association
AASHTO	=	American Association of State Highway and Transportation Officials
ABS	=	Antilock Braking System
ADA	=	Americans with Disabilities Act of 1990
AHS	=	Automated Highway System
ATMS	=	Advanced Traffic Management System
ATP	=	Advanced Technology Program
AVCIS	=	Advanced Vehicle Control and Information Systems
AVI	=	Automatic Vehicle Identification
AVL	=	Automatic Vehicle Location

B.

BART	=	Bay Area Rapid Transit
BTS	=	Bureau of Transportation Statistics

C.

CAD	=	Computer-Aided Design
CAA	=	Clean Air Act
CAAA	=	Clean Air Act Amendments of 1990
CADRE	=	Critical Automated Data Reporting Elements
CALTRANS	=	California Department of Transportation
CBD	=	Commerce Business Daily
CDROM	=	Compact Disc-Read Only Memory
CDS	=	Crashworthiness Data System
CERF	=	Civil Engineering Research Foundation
CFR	=	Code of Federal Regulations
CMS	=	Changeable Message Sign
CTPP	=	Census Transportation Planning Package
CTRD	=	Coordinating Committee on Transportation Research and Development
CVO	=	Commercial Vehicle Operations

D.

DARPA	=	Defense Advanced Research Project Agency
DOC	=	Department of Commerce
DOD	=	Department of Defense

DOE	=	Department of Energy
DOJ	=	Department of Justice
DOT	=	Department of Transportation

E.

ECDIS	=	Electronic Chart Display Information System
EPA	=	Environmental Protection Agency
ETMM	=	Electronic Toll and Traffic Management

F.

FAA	=	Federal Aviation Administration
FAR	=	Federal Acquisition Regulation
FARS	=	Fatal Analysis Reporting System
FEMA	=	Federal Emergency Management Agency
FHWA	=	Federal Highway Administration
FRA	=	Federal Railroad Administration
FRP	=	Federal Radionavigation Plan
FTA	=	Federal Transit Administration
FTE	=	Full-time equivalent
FY	=	Fiscal year

G.

GAO	=	General Accounting Office
GES	=	General Estimates System
GIS	=	Geographic Information Systems
GPRA	=	Government Performance and Results Act
GPS	=	Global Positioning System

H.

HHS	=	Department of Health and Human Services
HPMS	=	Highway Performance Monitoring System
HSCT	=	High Speed Ground Transportation
HSR	=	High Speed Rail
HSRC	=	Highway Seismic Research Council

I.

IDEA	=	Innovations Deserving Exploratory Analysis
IITF	=	Information Infrastructure Task Force
IMO	=	International Maritime Organization

ISTEA	=	Intermodal Surface Transportation Efficiency Act
ITN	=	Independent Transportation Network
ITS	=	Intelligent Transportation System (<i>formerly IVHS</i>)
IVHS	=	Intelligent Vehicle Highway System

J.

JPO	=	Joint Program Office
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L.

LCV	=	Longer Combination Vehicles
LTPP	=	Long-Term Pavement Performance

M.

MARAD	=	Maritime Administration
MDP	=	Moving Deformable Barriers
MPO	=	Metropolitan Planning Organization

N.

NAC	=	National Automotive Center
NADS	=	National Advanced Driving Simulator
NASA	=	National Aeronautics and Space Administration
NASS	=	National Automotive Sampling System
NAFTA	=	North American Free Trade Agreement
NCEER	=	National Center for Earthquake Engineering Research
NCHRP	=	National Cooperative Highway Research Program
NDE	=	Non-Destructive Engineering
NHS	=	National Highway System
NHTSA	=	National Highway Traffic Safety Administration
NHS	=	National Highway System
NII	=	National Information Infrastructure
NIST	=	National Institute of Standards and Technology
NOAA	=	National Oceanic and Atmospheric Administration
NSC	=	National Security Council
NSF	=	National Science Foundations
NSTC	=	National Science and Technology Council
NWS	=	National Weather Service, Department of Commerce

O.

OMB	=	Office of Management and Budget
OMC	=	Office of Motor Carriers
OST	=	Office of the Secretary of Transportation
OSTP	=	Office of Science and Technology Policy

P.

PAR	=	Police Accident Report
PRS	=	Performance-Related Specifications
PNGV	=	Partnership for a New Generation of Vehicles

R.

R&D	=	Research and Development
R&T	=	Research and Technology
RFI	=	Request for Information
ROW	=	Right-of-Way
RSPA	=	Research and Special Programs Administration

S.

SAE	=	Society of Automotive Engineers
SBA	=	Small Business Administration
SBIR	=	Small Business Innovation Research
SHRP	=	Strategic Highway Research Program
SP&R	=	State Planning and Research

T.

TCRP	=	Transit Cooperative Research Program
TMS	=	Traffic Management System
TPR	=	Transit Planning and Research
TRB	=	Transportation Research Board
TRP	=	Technology Reinvestment Project
TTC	=	Transportation Test Center

U.

USC	=	United States Code
USCG	=	United States Coast Guard
USGS	=	United States Geological Survey
UTC	=	University Transportation Centers

V.

VMT	=	Vehicle Miles Travelled
VME	=	Vehicle Motion Environment
VNTSC	=	Volpe National Transportation Systems Center
VTs	=	Vessel Traffic System

W.

WWW	=	World Wide Web
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